

**Memorandum for Record****October 6, 2020**

**SUBJECT: Suitability Determination Memorandum for the City of Raymond Willapa Landing Park Boat Ramp dredging project on the Willapa River in Raymond, Washington.**

**Introduction**

This suitability determination memorandum (SDM) documents the consensus regarding the suitability of the proposed dredged material for unconfined aquatic disposal as determined by the Dredged Material Management Program (DMMP) agencies (U.S. Army Corps of Engineers, Washington Departments of Ecology and Natural Resources, and the U.S. Environmental Protection Agency).

**Project Description**

The Willapa Landing Park Boat Ramp is located on the south side of the North Fork Willapa River, on the east side of the City of Raymond (Figure 1). The ramp is surrounded by a twelve-acre park with a wetland trail, interpretive signage, fishing pier, and public facilities. The boat ramp was constructed in 1988, and the only previous maintenance dredging occurred in 1998 when the boat ramp and entrance channel area were dredged to a depth of -6 feet Mean Lower Low Water (MLLW). Since that time, sedimentation has filled in the boat ramp area and entrance channel.

**Project Summary**

Waterbody	North Fork Willapa River, Willapa Bay
Water classification	Marine
Project rank	Low-moderate
Total proposed dredging volume (cy)	9,181 cubic yards (cy)
Target proposed dredging depth	-6 ft MLLW
Max. proposed dredging depth (includes 2 feet overdepth allowance)	-8 ft MLLW
Proposed disposal location(s)	Flowlane in North Fork Willapa River or Willapa Bay
Dredged Material Management Units (DMMUs): No. of stations	DMMU 1: 10 grabs; 1 composite sample
DMMO tracking number	WLPBR-1-A-F-417
EIM Study ID	WLPBR20
USACE Permit Application Number	pending
Sampling and Analysis Plan (SAP) Approval Date	May 13, 2020
Sampling Date(s)	May 19, 2020
Testing Parameters	DMMP Marine COCs
Biological Testing	Not required
Suitability Outcome	All 9,181 cy found suitable for in-water disposal
Recency Expiration Date	May 2026

**Sampling and Analysis Description**

Sediment samples were collected by Van Veen grab sampling on May 19, 2020 aboard a 28-foot flat-top support vessel, owned and operated by the Port of Willapa Harbor. Figure 2 shows the sediment sampling locations and Table 1 lists the sampling station details. Ten grab samples were collected and composited into a single DMMU.

Samples were submitted to Analytical Resources, Inc. (ARI), located in Tukwila, WA, for analysis. Analyses were performed by ARI, Harold L Benny & Associates, LLC, Poulsbo, WA, Am Test Laboratories, Inc., Kirkland, WA, and Vista Analytical, El Dorado Hills, CA.

### **Data Validation**

An EPA Level 2b data quality assurance/quality control review of the analytical results was performed by NewFields. Only minor issues were documented. Sediment quality control results for conventional parameters, metals, and organics (PCBs, organochlorine pesticides, and semi-volatile organic compounds) were within the control limits prescribed by the SAP, analytical methods, DMMP requirements, or by the designated laboratory, with minor exceptions for four semi-volatile compounds. No analytical results were rejected; and all data are considered usable, as qualified, by the data validator.

### **Analytical Testing Results**

Table 2 summarizes the analytical results for the single DMMU composite (DMMU 1) alongside the DMMP marine guidelines. DMMU 1 had TOC of 1.11% and 82.2% fines. No detected or non-detected exceedances of the marine screening levels occurred.

**Dioxins/furans.** Dioxin/furan analysis was not required by the DMMP for this project based on reason-to-believe guidelines. Previous sampling in the Bay proper and other navigation sites have not indicated that dioxin is a concern, and there are no apparent sources.

### **DMMP Determinations**

#### **Suitability Determination**

Chemical concentrations in the dredge prism composite sample were below the DMMP marine SLs as discussed above. As such, the DMMP agencies have concluded that all 9,181 CY of characterized material from the Willapa Landing Park Boat Ramp are suitable for flow-lane disposal in Willapa Bay.

#### **Antidegradation Determination**

The sediment to be exposed by dredging must either meet the State of Washington Sediment Management Standards (SMS) or the State's Antidegradation Standard (Ecology, 2013) as outlined by DMMP guidance (DMMP, 2008). Concentrations of all DMMP chemicals of concern were below the DMMP SLs, and there is no reason to believe that a new exposed surface would be contaminated relative to the overlying materials; therefore, this project is in compliance with the State of Washington Antidegradation Standard.

#### **Debris Management**

The DMMP agencies implemented a debris screening requirement following the 2015 SMARM in order to prevent the disposal of solid waste and debris at open-water disposal sites in Puget Sound (DMMP, 2015).

Based on this sediment characterization, the DMMP did not identify or require any specific debris assessment or management practices/techniques for use on this project.

#### **Notes and Clarifications**

The decisions documented in this memorandum do **not** constitute final agency approval of the project. During the public comment period that follows a public notice, resource agencies will provide input on

the overall project, including approval of a flowlane disposal location and placement practices. A final decision will be made after full consideration of agency input, and after an alternatives analysis is done under section 404(b)(1) of the Clean Water Act.

The DMMP does not make specific beneficial use determinations. However, should the applicant decide to pursue a beneficial uses project, these data are available for the assessment of a project-specific beneficial use by the project proponent, permitting agencies, local health jurisdictions and/or the owner of a receiving property.

*A pre-dredge meeting with Ecology and the Corps of Engineers is required at least 7 days prior to dredging. A dredging quality control plan must be developed and submitted to the USACE Seattle District's Regulatory Branch and Ecology. Refer to the USACE permit and Ecology 401 certification for project-specific submittal requirements and timelines.*

## **References**

DMMP 2018. *Dredged Material Evaluation and Disposal Procedures (User Manual)*. Dredged Material Management Program, updated December 2018.

DMMP, 2015e. DMMP Clarification Paper: Debris Screening Requirements for Dredged Material Disposed at Open-Water Sites. Prepared by Erika Hoffman (EPA), Celia Barton (DNR), and David Fox (USACE) for the DMMP Agencies, October 2.

DMMP, 2008. DMMP Clarification Paper: Quality of Post-dredge Sediment Surfaces (Updated). Prepared by David Fox (U.S. Army Corps of Engineers), Erika Hoffman (EPA Region 10) and Tom Gries (Washington State Department of Ecology) for the DMMP agencies.

Ecology, 2013.

NewFields, 2020. SAP

NewFields, 2020. SCR.

**Agency Signatures**

The signed copy is on file at the Dredged Material Management Office, Seattle District USACE.

\_\_\_\_\_  
Date Kelsey van der Elst – U.S. Army Corps of Engineers, Seattle District

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Date Justine Barton – U.S. Environmental Protection Agency, Region 10

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Date Laura Inouye, PhD. – Washington State Department of Ecology

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Date Shannon Soto – Washington State Department of Natural Resources

**Copies Furnished:**

- DMMP agencies
- John Nakayama, NewFields
- Tom Nordin, City of Raymond
- Jim Sayce, City of Raymond
- DMMO File

**Tables**

**Table 1: Actual Sampling Locations, DMMU Composites, Water Depths, and Mudline Elevations (NewFields, 2020).**

DMMU	Location Name	Local Time <sup>1</sup>	State Plane WA-S		Latitude (°N)	Longitude (°W)	Water Depth (ft)	Recorded Tidal Height (ft MLLW)	Calculated Mudline Elevation (ft MLLW)
			NAD 83						
			Northing	Easting	NAD 83	NAD 83			
WL20-D01-C	D01-01	1135	511218.55	831324.22	46.689853	-123.725064	-4.5	8.1	3.6
	D01-02	1125	511252.69	831341.37	46.689949	-123.725000	-5.3	7.8	2.5
	D01-03	1115	511226.12	831376.08	46.689880	-123.724859	-4.1	7.7	3.6
	D01-04	1100	511277.95	831384.06	46.690023	-123.724836	-5.1	7.6	2.5
	D01-05	1046	511304.26	831387.54	46.690095	-123.724826	-3.7	7.3	3.6
	D01-06	1037	511279.52	831420.58	46.690031	-123.724691	-3.3	6.9	3.6
	D01-07	1152	511334.87	831433.48	46.690404	-123.724506	-6.1	8.4	2.4
	D01-08	1027	511366.66	831430.87	46.690184	-123.724648	-2.4	6.6	4.3
	D01-09	1206	511413.70	831472.42	46.690271	-123.724664	-6.6	8.5	1.9
	D01-10	0950	511405.49	831489.59	46.690384	-123.724436	-5.9	5.3	-0.6

NAD 83: North American Datum of 1983

1. All grab samples were collected on 5/19/2020. Local time is Pacific Daylight Time.

**Table 2. Willapa Landing Park Boat Ramp Conventional and Chemistry Results (NewFields, 2020)**

Parameter	Sediment		DMMP			WL20-D01		
	MDL	RL	SL	BT	ML	Results	LQ	VQ
<b>Conventionals</b>								
Total Solids (%)	---	0.1	---	---	---	33.41		
Total Volatile Solids (%)	---	0.1	---	---	---	10.49		
Total Organic Carbon (%)	0.02	0.05	---	---	---	1.11		
Total Sulfides (mg/kg)	0.06	0.1	---	---	---	1	U	
Ammonia (mg/kg)	0.04	0.5	---	---	---	23.8	D	
Grain Size: Gravel (%)	---	0.1	---	---	---	0.6		
Grain Size: Sand (%)	---	0.1	---	---	---	17.2		
Grain Size: Silt (%)	---	0.1	---	---	---	53.5		
Grain Size: Clay (%)	---	0.1	---	---	---	28.7		
Grain Size: Fines (%)	---	0.1	---	---	---	82.2		
<b>Metals (mg/kg)</b>								
Antimony	2	4	150	---	200	0.58	U	
Arsenic	2	4	57	507.1	700	11.7		
Cadmium	0.09	0.2	5.1	---	14	0.13	J	
Chromium	0.3	0.8	260	---	---	38.1		
Copper	0.4	0.8	390	---	1,300	41.9		
Lead	0.7	2	450	975	1,200	12.4		
Mercury	0.002	0.02	0.41	1.5	2.3	0.0909		
Selenium	0.03	1	---	3	---	2.11		
Silver	0.3	0.8	6.1	---	8.4	0.29	J	
Zinc	0.2	1	410	---	3,800	99.3		
<b>Organics (µg/kg)</b>								
<b>Low Molecular Polycyclic Aromatic Hydrocarbons (LPAH)</b>								
Naphthalene	2.9	10	2,100	---	2,400	11.3	J	
Acenaphthylene	2.6	10	560	---	1,300	19.9	U	
Acenaphthene	3.2	10	500	---	2,000	19.9	U	
Fluorene	3.3	10	540	---	3,600	5.7	J	
Phenanthrene	3.6	10	1,500	---	21,000	35.1		
Anthracene	3.2	10	960	---	13,000	8.0	J	
2-Methylnaphthalene	2.8	10	670	---	1,900	19.9	U	
Total LPAH	---	---	5,200	---	29,000	60.1		

Table 2. Willapa Landing Park Conventional and Chemistry Results (Cont.)

Parameter	Sediment		DMMP			WL20-D01		
	MDL	RL	SL	BT	ML	Results	LQ	VQ
<b>High Molecular Polycyclic Aromatic Hydrocarbons (HPAH)</b>								
Fluoranthene	3.7	10	1,700	4,600	30,000	124		
Pyrene	3.7	10	2,600	11,980	16,000	109		
Benzo(a)anthracene	3.6	10	1,300	---	5,100	34.5		
Chrysene	4.1	10	1,400	---	21,000	49.3		
Benzofluoranthenes	---	10	3,200	---	9,900	81.1		
Benzo(a)pyrene	3.6	10	1,600	---	3,600	23.4		
Indeno(1,2,3-c,d)pyrene	3.2	10	600	---	4,400	13.2	J	
Dibenzo(a,h)anthracene	3	10	230	---	1,900	19.9	U	
Benzo(g,h,i)perylene	3.7	10	670	---	3,200	14.7	J	
Total HPAH	---	---	12,000	---	69,000	449		
<b>Chlorinated Hydrocarbons</b>								
1,4-Dichlorobenzene	2.5	10	110	---	120	19.9	U	
1,2-Dichlorobenzene	2.4	10	35	---	110	19.9	U	
1,2,4-Trichlorobenzene	2.6	10	31	---	64	19.9	U	
Hexachlorobenzene	3.3	10	22	168	230	5.0	U	
<b>Phthalates</b>								
Dimethyl phthalate	4	10	71	---	1,400	19.9	U	
Diethyl phthalate	3.7	10	200	---	1,200	19.9	U	
Di-n-butyl phthalate	4.8	20	1,400	---	5,100	19.9	U	
Butyl benzyl phthalate	3.7	10	63	---	970	19.9	U	
Bis(2-ethylhexyl)phthalate	8.9	100	1,300	---	8,300	49.8	U	
Di-n-octyl phthalate	3.2	10	6,200	---	6,200	19.9	U	
<b>Phenols</b>								
Phenol	3.1	30	420	---	1,200	26		
2 Methylphenol	4.1	10	63	---	77	19.9	U	
4 Methylphenol	4.5	10	670	---	3,600	27.1		
2,4-Dimethylphenol	6.3	50	29	---	210	4.1	J	
Pentachlorophenol	5.3	100	400	504	690	99.6	U	
<b>Miscellaneous Extractables</b>								
Benzyl alcohol	4.9	20	57	---	870	19.9	U	
Benzoic acid	96	400	650	---	760	190	J	
Dibenzofuran	3.4	10	540	---	1,700	5.5	J	
Hexachlorobutadiene	3	10	11	---	270	5.0	U	
N-Nitrosodiphenylamine	20	50	28	---	130	19.9	U	

**Table 2. Willapa Landing Park Conventional and Chemistry Results (Cont.)**

Parameter	Sediment		DMMP			WL20-D01		
	MDL	RL	SL	BT	ML	Results	LQ	VQ
<b><i>Pesticides</i></b>								
4,4'-DDD	1	5	16	---	---	0.144		
4,4'-DDE	1.6	5	9	---	---	0.0996		
4,4'-DDT	0.85	5	12	---	---	0.04	U	
Total 4,4'-DDx	---	5	---	50	69	0.2436		
Aldrin	0.34	5	9.5	---	---	0.04	U	
Total Chlordane	---	5	2.8	37	---	0.014	J	
Dieldrin	0.48	5	1.9	---	1,700	0.04	U	
Heptachlor	0.83	5	1.5	---	270	0.04	U	
<b><i>Polychlorinated Biphenyl (PCB) Aroclors</i></b>								
PCB-Aroclor 1016	---	---	---	---	---	4.0	U	
PCB-Aroclor 1221	---	---	---	---	---	4.0	U	
PCB-Aroclor 1232	---	---	---	---	---	4.0	U	
PCB-Aroclor 1242	---	---	---	---	---	4.0	U	
PCB-Aroclor 1248	---	---	---	---	---	4.0	U	
PCB-Aroclor 1254	---	---	---	---	---	4.0	U	
PCB-Aroclor 1260	---	---	---	---	---	4.0	U	
PCB-Aroclor 1262	---	---	---	---	---	4.0	U	
PCB-Aroclor 1268	---	---	---	---	---	4.0	U	
Total PCBs	2.1	10	130	38*	3,100	4.0	U	

**Notes:** Non-detect results reported at the method detection limit (MDL).

**LQ:** laboratory qualifier **VQ:** validation qualifier **SL:** screening level **ML:** maximum level **BT:** bioaccumulation trigger

U: the analyte was not detected

D: the reported value is from a dilution

J: the result was estimated

UJ: the analyte was not detected above the reported sample quantitation limit, and the reported quantitation limit is approximate

Fines: sum of silt and clay fractions

LPAH: sum of detected values of naphthalene, acenaphthylene, acenaphthene, fluorene, phenanthrene, and anthracene

HPAH: sum of detected values of fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzofluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, and benzo(ghi)perylene

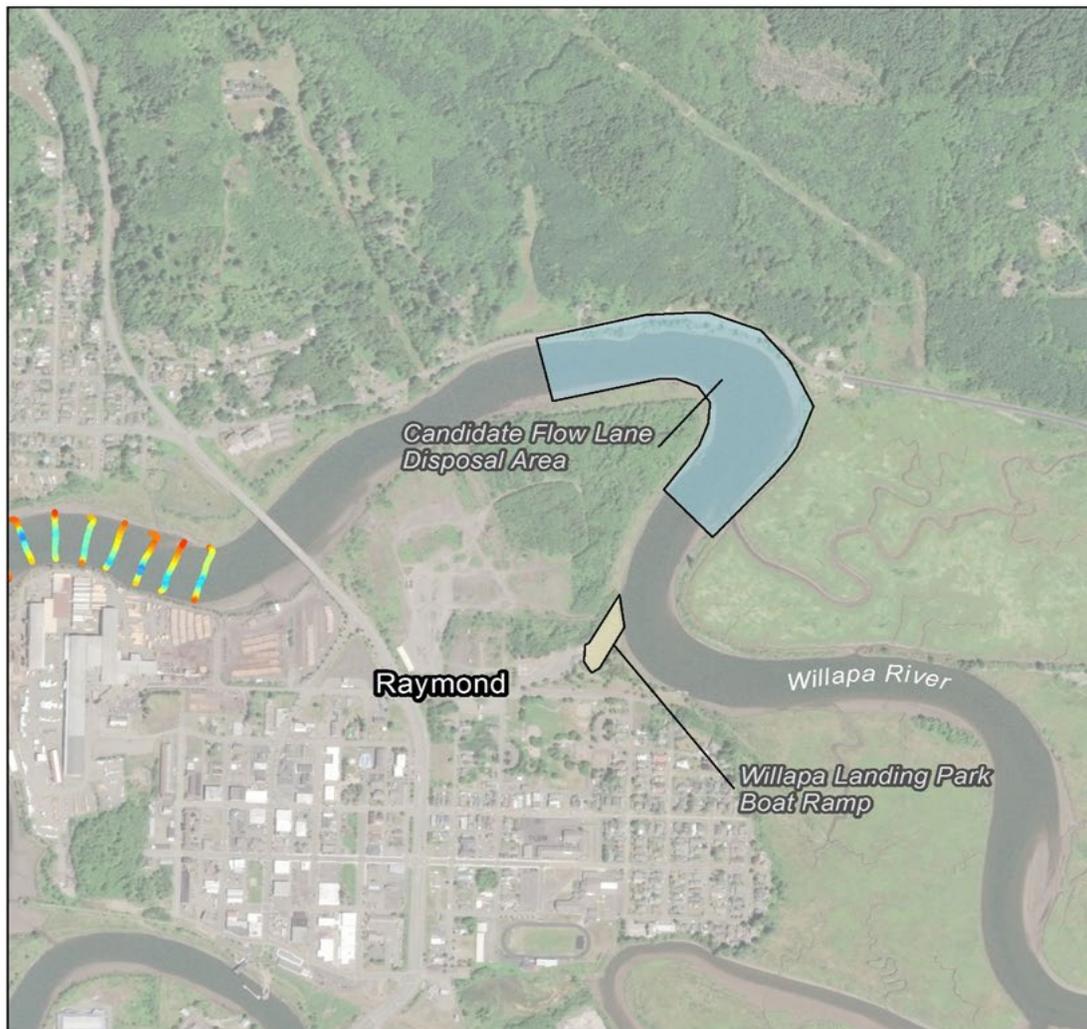
Total PCBs: sum of detected PCB Aroclors

Total 4,4'-DDx: sum of detected 4,4'-DDE (dichlorodiphenyldichloroethylene), 4,4'-DDD (dichlorodiphenyldichloroethane), and 4,4'-DDT (dichlorodiphenyltrichloroethane)

Total Chlordane: sum of detected gamma-chlordane, cis-chlordane, cis-nonachlor, trans-nonachlor, and oxychlordane

\* This BT value is normalized to total organic carbon, and is expressed in mg/kg organic carbon (mg/kg OC).

**Figure 1. Overview Map. Willapa Landing Park Boat Ramp and Candidate Flow Lane Disposal Area (NewFields, 2020a)**



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**Figure 1-2. Willapa Landing Park Boat Ramp and Candidate Flow Lane Disposal Area**

**USACE Bathymetry (ft MLLW)**



**Study Areas**

-  Currents & Bathymetry | Modeling | Grainsize Distribution
-  Bathymetry | Composite Sediment Grab Sample



Figure 2. Sediment Sample Locations (NewFields, 2020b)

